



**PACIFIC RIM ENVIRONMENTAL, INC.**  
SEATTLE ANCHORAGE

September 2, 2002

Ryan Weller  
**Federal Aviation Administration**  
3101 Auburn Way South  
Renton, WA 98092

Phone: (206) 804-2933

**RE:** Spokane International Airport, ATCT EG Room  
Spokane, Washington

Dear Mr. Weller:

On August 21, 2002, Lance Kiblinger of Pacific Rim Environmental, Inc. performed limited sampling of a fabric insulation on a 6" hydraulic line. The material was found in the emergency generator room. Mr. Kiblinger is an AHERA accredited building inspector (See Attached) and PRE's asbestos analytical laboratory is accredited by the National Voluntary Laboratory Accreditation Program (See Attached).

The scope of sampling was limited to the emergency generator room at the air traffic control tower at the Spokane International Airport. The material was found on a hydraulic line that was approximately one (1) inch in diameter and six (6) inches in length. After inspecting the area it was decided by the inspector to remove the line from the generator by unscrewing the line at both ends. The fabric insulation was not disturbed during this process. The material was then bagged in a PLM sample bag for analysis.

During this process air samples were set up to for air quality purposes and analyzed onsite. After the sampling was completed two (2) air quality samples were started for clearance results, one (1) sample was analyzed using PCM method and the other sample was analyzed using TEM method. All samples taken were found to be less than the clearance level standard of 0.01 f/cc set by the Environmental Protection Agency, 40 CFR Part 769.

The samples taken were analyzed in accordance with either NIOSH 7400, Phase Contrast Microscopy method and/or NIOSH 7402, Transmission Electron Microscopy method.

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**Corporate Office**  
6510 Southcenter Blvd., Ste. #4  
Seattle, WA 98188  
Phone: (206) 244-8965  
Fax: (206) 244-9096

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**Anchorage Office**  
8501 East 12th Court  
Anchorage, AK 99504  
Phone/Fax: (907) 569-8081  
Pager: 1-888-341-8081

The PLM bulk sample was collected and found to contain asbestos. The sample was analyzed in accordance with method EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials".

This scope of work does not satisfy either the state or local requirements for building demolition permitting.

**PLM:**

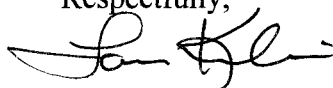
Project ID	Sample #	Sample Location	AHERA Category	Sample Description	Asbestos Type/Percentage
12572	A01	ATCT, EG Room	TSI	Woven fabric on rubber hydraulic line	Chrysotile (70-75%)

**AIR:**

Project ID	Sample #	Sample Location	Sample Type	Fibers/Field	Volume (liters)	Fibers/cc
12572.01	A01	Generator Room, PLM Sampling on Generator Hose	Inside Area	2/100	101.0	<0.048
12572.01	A02	Generator Room, PLM Sampling on Generator Hose	Inside Area	1/100	15.0	<0.326
12572.01	A03		Field Blank	0/100	-----	-----
12572.01	A04		Field Blank	0/100	-----	-----
12572.01	A05	Generator Room, East Wall	Clearance	7/100	1212.0	<0.004
12572.01	A06	Generator Room, Northeast Wall (TEM)	Clearance	-----	1200.0	<0.001
12572.02	A07	Generator Room	Clearance	9/100	1212.0	<0.004
12572.02	A08		Field Blank	0/100	-----	-----
12572.02	A09		Field Blank	0/100	-----	-----

If you have any further questions regarding this inspection, please do not hesitate to contact our office at (206) 244-8965.

Respectfully,



Lance Kiblinger  
Pacific Rim Environmental, Inc.



**PACIFIC RIM ENVIRONMENTAL, INC.**  
SEATTLE ANCHORAGE

**PCM ANALYSIS REPORT**

Client: Federal Aviation Administration  
3101 Auburn Way South  
Auburn, WA 98092

Report Date: 09/13/2002  
Date Analyzed: 08/21/2002

PRE Job #: 12572-01

Project: Spokane International Airport ATCT  
EG Room

Analyst: L.K.  
Technician: L.K.

PRE#	Sample Type	Sample Date	Time (minutes)	Flow (l/min.)	Volume (liters)	Fibers/Field	Fibers/cc
12572-A01	I	08/21/02	10	10.1	101.0	2/100	<0.048
12572-A02	B	08/21/02	10	1.5	15.0	1/100	<0.326
12572-A03	BL	08/21/02				0/100	-----
12572-A04	BL	08/21/02				0/100	-----
12572-A05	CL	08/21/02	120	10.1	1212.0	7/100	<0.004
12572-A06	CL	08/21/02	120	10.0	1200.0	TEM	TEM

PRE#	Worker Name	SS#	Respirator
12572-A02	Not Submitted	Not Submitted	Half Mask

PRE#	Sample Type / Location / Activity
12572-A01	Inside Area. Generator room. PLM sampling on generator hose.
12572-A02	Breathing Zone. Generator room. PLM sampling on generator hose.
12572-A03	Field Blank.
12572-A04	Field Blank.
12572-A05	Clearance Sample. Generator room. East wall.
12572-A06	Clearance Sample. Generator room. Northeast wall. (TEM).

Analysis was performed using the NIOSH 7400A Methodology. The limit of quantification is 10 fibers per 100 fields (10/100). Samples with less than 10 fibers per 100 fields are reported as less than (<) the limit of quantification. The area of the Walton-Beckett graticule is 0.00785 mm<sup>2</sup>. B = Breathing Zone (Personal); P = Pre Abatement; CL = Clearance; H = HEPA Exhaust; EX = Excursion Limit; BL = Field Blank; and CBR = Cannot Be Read.

Reviewed By:

*Melanie R. Bryce*

Date: 9/13/2002

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**PACIFIC RIM ENVIRONMENTAL, INC.**  
SEATTLE ANCHORAGE

**PCM ANALYSIS REPORT**

Client: Federal Aviation Administration  
3101 Auburn Way South  
Auburn, WA 98092

Report Date: 09/13/2002  
Date Analyzed: 08/22/2002

PRE Job #: 12572-02

Project: Spokane International Airport ATCT  
EG Room

Analyst: L.K.  
Technician: L.K.

PRE#	Sample Type	Sample Date	Time (minutes)	Flow (l/min.)	Volume (liters)	Fibers/Field	Fibers/cc
12572-A07	I/CL	08/22/02	120	10.1	1212.0	9/100	<0.004
12572-A08	BL	08/22/02				0/100	-----
12572-A09	BL	08/22/02				0/100	-----

PRE#	Sample Type / Location / Activity
12572-A07	Inside Area/Clearance Sample.
12572-A08	Field Blank.
12572-A09	Field Blank.

Analysis was performed using the NIOSH 7400A Methodology. The limit of quantification is 10 fibers per 100 fields (10/100). Samples with less than 10 fibers per 100 fields are reported as less than (<) the limit of quantification. The area of the Walton-Beckett graticule is 0.00785 mm<sup>2</sup>. B = Breathing Zone (Personal); P = Pre Abatement; CL = Clearance; H = HEPA Exhaust; EX = Excursion Limit; BL = Field Blank; and CBR = Cannot Be Read.

Reviewed By:

*Melanie L. Bryce*

Date: 09/13/2002

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**PACIFIC RIM ENVIRONMENTAL, INC.**  
SEATTLE ANCHORAGE

**BULK SAMPLE ANALYSIS REPORT**

**CLIENT:** Federal Aviation Administration  
Seattle ARTCC  
3101 Auburn Way South  
Auburn, WA 98092

**PRE #:** 12572  
**Report #:** 2002-08-404  
**Report Date:** 09/05/02

**Project:** Spokane International Airport ATCT  
Generator Room, Spokane, WA  
**Contact:** Ryan Weller

**Date Received:** 08/27/02  
**Date Analyzed:** 09/03/02  
**Page:** 1 of 2  
**Analyst:** Fred Golloway

Attached are the results of analysis of 1 bulk sample submitted for asbestos identification, lab ID #2002-08-404.

The sample was analyzed in accordance with method EPA-600/R-93/116: "Method for the Determination of Asbestos in Bulk Building Materials".

Unless otherwise noted, the sample was inhomogeneous; subsamples of components were analyzed to achieve representative analysis. Separate layers of layered samples are analyzed and reported separately. Unless otherwise stated, asbestos content was quantified by calibrated visual estimation (CVES). CVES concentrations are reported in 2 to 3 percent ranges for fiber concentrations ranging from 1-10%, and 5 percent ranges for concentrations greater than 10%. Samples in which asbestos was not observed are reported as "none detected".

**Limitations and Uncertainty:**

Factors such as sample quality, sample size, interfering matrix material, fiber size, and fiber concentration contribute to the uncertainty of asbestos concentration measurements in bulk materials. Relative errors exceeding 100% may occur in samples containing <1-10% asbestos. Relative errors are typically below 30% in samples with greater than 10% asbestos, and approach zero as the asbestos concentration approaches 100%.

Asbestos fibers with diameters below approximately 0.25 micrometers may not be detectable by PLM. These extremely fine fibers may occur in such products as floor tile, adhesives, and cement products. This limitation can be overcome, however, by the use of alternate analytical methods, such as Transmission Electron Microscopy (TEM).

This report cannot be represented by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. Test results pertain only to the samples submitted for analysis.

This report shall not be reproduced except in full without written permission of the laboratory.

NVLAP Accredited Lab Code: 101631-0

Samples submitted by: P.R.E.

Reports reviewed by:  
Approved Signatory

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**PACIFIC RIM ENVIRONMENTAL, INC.**  
**BULK SAMPLE ANALYSIS REPORT**

**CLIENT:** Federal Aviation Administration  
Seattle ARTCC  
3101 Auburn Way South  
Auburn, WA 98092

**PRE #:** 12572  
**Report #:** 2002-08-404  
**Report Date:** 09/05/02

**Project:** Spokane International Airport ATCT  
Generator Room, Spokane, WA  
**Contact:** Ryan Weller

**Date Received:** 08/27/02  
**Date Analyzed:** 09/03/02  
**Page:** 1 of 2  
**Analyst:** Fred Golloway

Client/Lab Number	Sample Location and Description	Asbestos Type / %	Other Material	Date Analyzed
12572-A01 2002-08-404	Light brown woven material on pipe.	<b>Chrysotile (70-75%).</b>	Cellulose (<1%), Synthetics (3-5%), Binder.	09/03/02

# Lab/Cor, Inc.

*A Professional Service Corporation in the Northwest*

September 9, 2002

Pacific Rim Environmental  
6510 Southcenter Blvd.  
Suite 4  
Tukwila, WA 98188

Attn: Lance Kiblinger

Project Name: Spokane International Airport-ATCT Generator Room

Project Number: 12572

P. O. Number: Not Available

Lab/Cor Batch Number: 021076

**Conditions** Enclosed please find results for samples submitted to our laboratory on August 28, 2002. A list of samples received follows, with limitation or rejection criteria noted where applicable.

Lab/Cor Sample No.	Client Sample No.	Limitation/Rejection Criteria
021076-01	12572-A06	No special conditions were noted

**Method** Preparation and analysis of the above samples was conducted in accordance with the Niosh method 7402 for the identification of asbestos. The samples were collapsed with acetone, carbon coated at high vacuum with a thin layer of carbon, placed on 200 mesh copper grids and allowed to dissolve in acetone until cleared of filter debris.

TEM analysis was performed using a Philips 410 transmission electron microscope equipped with an EDAX PV9800 X-ray analyzer. The air samples were scanned at a magnification of approximately 990X using an accelerating voltage of 100 KV. The magnification was increased to about 10,000X for structure sizing.

**Counting Rules**

Minimum Aspect Ratio	Minimum Length	Minimum Width	Minimum Required Analytical Sensitivity	Stopping Rules
3:1	5 $\mu$ m	0.25 $\mu$ m	NA	100 Fibers

**Disclaimer** This test report relates only to the items tested in this report. Interpretation of these results is the sole responsibility of the client.

If further clarification of these results is needed, please do not hesitate to call me. Thank you for allowing the staff at Lab/Cor, Inc. the opportunity to provide you with analytical services.

Sincerely,



John Harris  
Laboratory Director

# Lab/Cor, Inc.

A Professional Service Corporation in the Northwest

Report Number: 021076

Report Date: September 9, 2002

Client Information	
Project Name:	Spokane International Airport-ATCT Generator Room
Project No.:	12572
P. O. No.:	Not Available
Sample Type:	Air

Tracking Information		
Login:	Aug 28, 2002	By: RS
Prep:	Aug 28, 2002	By: MW
Verified:	Aug 28, 2002	By: MW
Reviewed:	Sep 3, 2002	By: DW
Final Review:	Sep 9, 2002	By: JH

Analysis Information	
Analysis Type:	NIOSH
Reference No.:	7402
Min. Aspect Ratio:	3:1
Min. Length:	5 µm
Min. Width:	0.25 µm

FINAL TABLE  
Transmission Electron Microscopy – NIOSH – Air Sample Analysis

Lab/Cor Sample No.	Client Sample No.	Description	Fiber Type	Concen- tration (Fibs/cc)	95% Confidence Interval (Fibs/cc)	Fiber Count	Opt. Vis. Asb. Fibs. (%)	Analytical Sens. (Fibs/cc)	Volume (liters)	Number of Grid Openings	Filter Area (mm <sup>2</sup> )	Area Analyzed (mm <sup>2</sup> )	Analyst	Analysis Date
021076-01  Test	12572-A06	Generator Room-NE Wall	ASBESTOS	<0.001	0 - 0.003	0	0	0.001	1200.0	40	385	0.4026	DW	8/30/02
			NON-ASBESTOS	0.003	0.001 - 0.008	4								
			TOTAL	0.003	0.001 - 0.008	4								

% Optically Visible Asbestos Fibers = (#Asbestos / #Total Fibers). This number indicates the representative fraction of asbestos to total fibers as defined by NIOSH 7400 standards and can be used as a factor to determine asbestos concentrations from PCM counts in similar sampling areas.

NA – Not Applicable. For samples in which no fiber types are found, percentage values do not apply.

NOTE: These counting rules are intended to coincide with NIOSH 7400 counting rules and do not measure smaller asbestos fiber populations below 5.0 µm lengths as would other TEM airborne analysis methods (AHERA, EPA - Yamate).



# Lab/Cor, Inc.

A Professional Service Corporation in the Northwest

Report Number: 021076

Report Date: Sep 9, 2002

Client: Pacific Rim Environmental

Lab/Cor Sample No.: 021076-01

Project Name: Spokane International Airport-ATCT Generator Room

Analyst: DW

Sample No.: 12572-A06

Analysis Date: Aug 30, 2002

Description: Generator Room-NE Wall

## TEM ASBESTOS FIBER COUNT – RAW DATA

Grid	GO No.	Grid Coordinates	Structure No.	Structure Type	Average Length	Average Width	Asbestos						Non-Asbestos	Neg. No.	EDS No.	Elements	Comments	Confirmation	
							Ch	Am	Ac	An	Tr	Cr						By	Date
A	1	B 34	NSD**																
	2	B 24	NSD																
	3	B 14	NSD																
	4	B 4	NSD																
	5	C 4	NSD																
	6	C 14	NSD																
	7	C 24	NSD																
	8	C 34	NSD																
	9	C 44	NSD																
	10	C 43	NSD																
	11	C 33	NSD																
	12	C 23	NSD																
	13	C 13	1	Fiber	8	0.85							✓			P, S, K			
	14	C 3	NSD																
	15	B 3	NSD																
	16	B 13	1	Fiber	15	0.25							✓			P, S, K			
	17	B 23	NSD																
	18	B 33	NSD																
	19	B 43	NSD																
	20	B 42	NSD																
	21	B 32	NSD																
	22	B 22	NSD																
	23	B 12	NSD																
	24	B 2	NSD																
	25	C 2	NSD																
	26	C 12	NSD																
	27	C 22	NSD																
B	28	D 1	NSD																
	29	A 1	1	Fiber	20	0.65							✓			P, S, K			
			2	Fiber	12	0.75							✓			P, S, K			
	30	A 11	NSD																

\*\*NSD – No Structures Detected

02107600.TEM

Page 3 of 5

Ch – Chrysotile

Ac – Actinolite

Tr – Tremolite

Am – Amosite

An – Anthophyllite

Cr – Crocidolite

# Lab/Cor, Inc.

A Professional Service Corporation in the Northwest

Report Number: 021076

Report Date: Sep 9, 2002

Client: Pacific Rim Environmental

Lab/Cor Sample No.: 021076-01

Project Name: Spokane International Airport-ATCT Generator Room

Analyst: DW

Sample No.: 12572-A06

Analysis Date: Aug 30, 2002

Description: Generator Room-NE Wall

## TEM ASBESTOS FIBER COUNT – RAW DATA

Grid	GO No.	Grid Coordinates	Structure No.	Structure Type	Average Length	Average Width	Asbestos						Non-Asbestos	Neg. No.	EDS No.	Elements	Comments	Confirmation	
							Ch	Am	Ac	An	Tr	Cr						By	Date
	31	A 21	NSD																
	32	A 31	NSD																
	33	A 41	NSD																
	34	A 42	NSD																
	35	A 32	NSD																
	36	A 22	NSD																
	37	A 12	NSD																
	38	A 2	NSD																
	39	D 2	NSD																
	40	D 12	NSD																
	40						0	0	0	0	0	0	4						

\*\*NSD – No Structures Detected

02107600.TEM

Page 4 of 5

Ch – Chrysotile

Ac – Actinolite

Tr – Tremolite

Am – Amosite

An – Anthophyllite

Cr – Crocidolite

## GRID MAP

A69	A68	A67	A66	A65	A64	A63	A62	A61	A60	B60	B61	B62	B63	B64	B65	B66	B67	B68	B69
A59	A58	A57	A56	A55	A54	A53	A52	A51	A50	B50	B51	B52	B53	B54	B55	B56	B57	B58	B59
A49	A48	A47	A46	A45	A44	A43	A42	A41	A40	B40	B41	B42	B43	B44	B45	B46	B47	B48	B49
A39	A38	A37	A36	A35	A34	A33	A32	A31	A30	B30	B31	B32	B33	B34	B35	B36	B37	B38	B39
A29	A28	A27	A26	A25	A24	A23	A22	A21	A20	B20	B21	B22	B23	B24	B25	B26	B27	B28	B29
A19	A18	A17	A16	A15	A14	A13	A12	A11	A10	B10	B11	B12	B13	B14	B15	B16	B17	B18	B19
A9	A8	A7	A6	A5	A4	A3	A2	A1		B1	B2	B3	B4	B5	B6	B7	B8	B9	
D9	D8	D7	D6	D5	D4	D3	D2	D1		C1	C2	C3	C4	C5	C6	C7	C8	C9	
D19	D18	D17	D16	D15	D14	D13	D12	D11	D10	C10	C11	C12	C13	C14	C15	C16	C17	C18	C19
D29	D28	D27	D26	D25	D24	D23	D22	D21	D20	C20	C21	C22	C23	C24	C25	C26	C27	C28	C29
D39	D38	D37	D36	D35	D34	D33	D32	D31	D30	C30	C31	C32	C33	C34	C35	C36	C37	C38	C39
D49	D48	D47	D46	D45	D44	D43	D42	D41	D40	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49
D59	D58	D57	D56	D55	D54	D53	D52	D51	D50	C50	C51	C52	C53	C54	C55	C56	C57	C58	C59
D69	D68	D67	D66	D65	D64	D63	D62	D61	D60	C60	C61	C62	C63	C64	C65	C66	C67	C68	C69

To be used as a reference for grid coordinates from each raw data sheet.

# Asbestos Sample Summary

**Project Name:** Spokane International Airport ATCT, Spokane, WA

**PRE Project ID:** 12572.0000

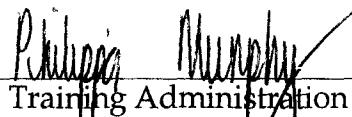
Sample #	Sample Location	AHERA Category	Sample Description	Asbestos Type/Percentage	Material Quantity (Approximate)
A01	EG Room,	TSI	White woven fabric material on rubber hydraulic line on generator	Chrysotile (70-75%)	N/A

# Certificate of Completion

This is to certify that  
**Lance Kiblinger**  
has satisfactorily completed  
4 hours of refresher training as an  
**Asbestos Building Inspector**

to comply with the training requirements of  
TSCA Title III / 40 CFR 763 (AHERA)

Certificate Number 1002074

  
Philip Murphy  
Training Administration

AHERA Certified: MO9907012

**ARGUS** PACIFIC  
SAFETY • TRAINING • INDUSTRIAL HYGIENE

Apr 24, 2002  
Date(s) of Training

Expiration Date: Apr 24, 2003

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United States Department of Commerce  
National Institute of Standards and Technology



ISO/IEC GUIDE 25:1990  
ISO 9002:1987

Certificate of Accreditation



**PACIFIC RIM ENVIRONMENTAL, INC.**  
TUKWILA, WA

*is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:*

**BULK ASBESTOS FIBER ANALYSIS**

March 31, 2003

Effective through

*David F. Alderman*

For the National Institute of Standards and Technology  
NVLAP Lab Code: 101631-0